INDEX TO VOLUME XIV.

[NOTE.—In this index the titles of principal papers and the headings of departments, as *Discussion*, are in italics.]

Abney well, Texas, 108
Abstracts—
The geology of the East Pool Mine (Maclaren), Turner, 270
The wolfram mines of Mount Carbine, North Queensland (Ball), Turner, 271
Abstracts, publication for, 570
Acid decomposition of wolframite, 637
Adirondack graphite deposits, 573
Aeroplano formation, Chile, 7
Albany formation, Texas, 103
Alkaline decomposition of wolframite, 637
Allegheny formation coals and pyrite, Ohio, 213
Allen, E. T., on formation of sulphuric acid, 604
Allen oil pool, Texas, 99
Alling, H. L., review of book by, 573
Alta fault, Wasatch Range, Utah, 175
Alteration, rocks of Evergreen copper deposit, 469; tungsten ores, 629
Alunite, 586; depth of formation, 605; formation at Tolfa, Italy, 586
Analyses (*see* Chemical analyses)
Analysis, screen, of sand chrome, 194
Anderson, Olaf, on adventurine feldspars, 371
Anhydrite, 583, 597; origin, 584
Animikie quartzite, metamorphism of, 395
Anorthosite, 511
Antimony, commercial control of, 168
Ashley, G. H., on greensand deposits, 560
Asphalt, clots on sea-beach, 310
Attwood series, 404
Augite, 371

Bäckström, H., on structure of granite, 385
Bald Mountain, 339
Ball, L. C., abstract of paper by, 271
Ball oil well, Texas, 122
Bank system of Germany, 149
Barite, 582, 597; as a gangue mineral, 62; concentration by weathering, 56; disseminated deposits, 54; mode of occurrence, 52, 62; origin, 58; production of, 46; residual deposits, 55; sink hole or cave deposits, 54
Barite deposits of Missouri (Tarr), 46; review of, 267
Barite deposits, of the United States, 66; origin, 568
Barium, percentage in igneous rocks, 59; in sedimentary rocks, 58
Barium salts, solubility, 59
Basal phases of the Duluth gabbro near Gabamichigami Lake, Minnesota, and its contact effects (Nebel), 367
Bastin, E. S., on origin of chalcocite in Evergreen ores, 479
Bastin, E. S., and Hill, J. M., on the Evergreen copper mine, 466
Bayley, W. S., note on paper by Nebel, 367; on basic rocks of Lake Superior region, 371
Beach phenomena, 307
Beans on Florida coast, 321
Becke, E., on myrmekite, 388
Becker, G. F., on fracturing of rocks, 21
Belemnitella americana, 560
Bench and channel, on Florida seabeach, 317
Bend series, central Texas, 106
Bend shale, lower, 108
Bend uplift, central Texas, 120
Bendigo quartz veins, 430
Beryllium, 638
Bibliography of the occurrence, geology and mining of manganese, with some references on its metallurgy and uses (Wheeler), 245
Bibliography, Chañarcillo district, Chile, 45; tendencies in the study of ore deposits, 553
Big Cottonwood district, Utah, ore deposits, 172
Bismuthinite, 636

Biwabik iron-bearing formation, east Mesabi district, Minnesota, Detail stratigraphy of the (Broderick), 441
Biwabik iron-bearing formation of the Mesabi range, Minnesota, The nature and origin of the (Grout), 452
Black Lime formation, Texas, 107
Blackwelder, Eliot, on faulting in the Wasatch Range, 172
Bleeck, A. W. G., on tungsten deposits, 626
Bliss, Eleanora F., *Some problems of international readjustment of mineral supplies as indicated in recent foreign literature*, 147–171
Bocano limestone, Chile, 15
Bolaco Viejo mine, Chile, 3
Boring record, Melbourne, Florida, 304
Bornite, 407, 471
Boutwell, J. M., on faulting in the Wasatch Range, 172
Boyle, A. C., Jr., on the origin of anhydrite, 584
Braden copper deposits, mineralization, 585
Bradley, W. W., review of book by, 349
Branner, J. C. on the diamond district of Bahia, 220
Brashear oil well, Texas, 97, 115
Brecciation, produced by overthrust faulting, 174
Breckenridge oil pool, Texas, 98
Brewer oil well, Texas, 97
Briey district, 160
Broderick, T. M., *Detail stratigraphy of the Biwabik iron-bearing formation, East Mesabi district, Minnesota*, 441–451; *Some of the relations of magnetite and hematite*, 353–366
Brown, J. C., on solubility of tungsten minerals, 77, 631
Buckley, E. R., on geologic formations of Missouri, 48
Buddle for washing sand chrome, 191
Burgess, J. A., on halogen salts of silver at Wonder, Nevada, 428
Burma tungsten deposits, 625
Burrows, A. G., on the geology of Matachewan district, 285
Butler, B. S., *Primary (hypogene) sulphate minerals in ore deposits*, 581–609; *Relation of ore deposits to thrust faults in the central Wasatch region, Utah*, 172–175; on mineralization in the San Francisco district, 606
Butler, B. S., and Gale, H. S., on the occurrence of alunite, 586
Butler, G. M., review of book by, 89

Caboclo shale, 225, 242
Cactus mine, formation of minerals, 601
Caddo oil field, Texas, 98
Cambrian in Missouri, 48
Cambro-Ordovician series, central Texas, 108
Campbell, J. M., on origin of tungsten deposits, 626
Candelaria mine, Chile, 3
Canyon formation, Texas, 105, 127
Cape Canaveral, Florida, 303
Caracolas silver district, Chile, 4
Carbon ratio, fixed, relation to oil accumlations, 488
Carbon ratios of coal, 537
Carbonaceous matter in Nonesuch copper ores, 326
Cariboo district, gold production, 336; placer mines, 335
Cariboo schists, 337
Cartel system of Germany, 150
Cassiterite, 628
Castoro, N., on the production of colloid metals, 329
Cave barite deposits, 54
Cawyer well, Texas, 124
Celestite, 586
Chalcopyrite, 407, 471, 473
Challacollo silver district, Chile, 4
Chalmerite, 400
Chañaral formation, Chile, 6
Chañarcillo district, Chile, 2, 12
Chañarcillo formation, 7, 12, 16
Chapada Diamantina of Bahia, geologic column, 241
Chemical analyses — dolomite, 50; gases from Halemaumau, 592: granite, 385; halides of silver, Chañarcillo, Chile, 40; magnetic iron ore, 527; manganese ore, 630; porphyry, 289; sand chrome concentrates, 194; vein and wall rock, Chañarcillo, Chile, 39
Chemistry, physical, application to ore deposits, 545
Chemistry of mineralization, Chañarcillo district, Chile, 40
Cheney, M. G., on oil fields of central Texas, 118

Chert, 50
Chert nodules in magnetite deposits, 462
Cherty beds of Biwabik formation, 445, 447
Chrome industry, Maryland, 189
Chrome, magnetic and non-magnetic, 491
Chrome ore, sand, Maryland (Singewald), 189
Chrome ore deposits, Maryland, map of, 190
Cinnabar, association with alunite, 597
Cisco formation, Texas, 104, 126
Clapp, C. H., on the genesis of alunite, 588
Clark, W. B., on the sand marl of New Jersey, 560
Clarke, F. W., on barium content of sedimentary rocks, 58; on volcanic emanations, 590
Classification, of geologic work in oil prospecting, 480; of rocks for engineering, 180, 264
Cleaning pyrite, methods, 209
Clear Fork formation, Texas, 103
Clements, J. M., on outliers of Duluth gabbro, 381
Climate of northern Chile, 5
Closure in reconnaissance mapping, 420
Clots of asphalt on sea-beach, 310
Coal horizons, Ohio, 202
Coal measures of Ohio, 201
Coal mines of Ohio, 203–208
Coal situation in Europe, 162
Coals, of the Allegheny formation, Ohio, 213; of the Pottsville formation, Ohio, 211
Cobalt district silver production, 550
Cobalt series, 285
Colorado-Ontario gold claims, 287
Columbus fault, Wasatch Range, Utah, 175
Comanche County oil field, Texas, 99
Commercial expansion methods of Germany, 148
Compass-bearings, 413
Compression in the Adirondack region, 535
Concentration of barite by weathering, 56
Conglomerate beds, 459
Conquest of foreign markets by Germany, 152
Conservation of mineral resources, 548
Constancia mine, Chile, 3; projection of workings, 27
Constancia tuff, Chile, 16
Contact metamorphism, Duluth gabbro, 392
Control of minerals, 157
Cook, G. H., on the marls of New Jersey, 559
Cook, O. F., identification by, 321
Cooke, H. C., *The origin of the gold deposits of Matachewan district, northern Ontario*, 281–301
Copiapó intrusives, Chile, 7, 12
Copper, in a meteorite, 619
Copper, Metallic, in a meteorite vein (Quirke), 619
Copper, native, Michigan, 324
Copper deposits, Corocoro, Bolivia, 602
Copper ores, Chañarcillo district, Chile, 38; Evergreen mine, Gilpin County, Colorado, 465; leaching, 594
Copper Range district, 324
Copper sulphides, in Duluth gabbro, 399
Copper sulphides in syenite and pegmatite dikes (McLaughlin), 403
Coquina clams, 308
Coquina limestone, 315
Corbett, Clifton S., *Method for projecting structure through an angular unconformity*, 610–618
Corocoro, Bolivia, copper deposits, 602
Corrida Colorado, Chañarcillo district, Chile, 20
Corrida vein, production, 3
Cost of reconnaissance mapping, 422
Crabs on sea-beach, 309
Crandall, Roderic, *Notes on the geology of the diamond region of Bahia, Brazil*, 220–244
Creedite, 589
Cretaceous formations, central Texas, 101
Cross, W., on alunitized rocks at Rico Mountains, Colo., 588
Crystallization, order in Duluth gabbro, 371
Culture, representation in reconnaissance mapping, 418
Cummings well, Texas, 124
Curve showing reaction of sulphur dioxide and oxygen, 595
Cusps, Florida beach, 313; in Medina sandstone, 315

Daiquiri iron ores, origin, 364
Dallas-Milburn well, Texas, 123
Daly, R. A., on geology of Boundary district, 404; on origin of igneous rocks, 477
Davidson claims, Ontario, 287
Davidson type of gold deposits, 292
Davis, W. M., on origin of nickel-bearing laterite of New Caledonia, 547
Davis well, Texas, 100
Day, A. L., and Shepherd, E. S., on volcanic gases, 592
Dean well, Texas, 123
Decomposition of wolframite, 636
DeGolyer, E., discussion by, 87; on salt domes, 178
DeLaunay, L., on coal and iron in Europe, 161; on the formation of alunite, 586
Delirio limestone, Chile, 16
Depth, of ore bodies, Chañarcillo district, Chile, 24, 33; persistence of ore in, 551; to possible oil-bearing horizons, 487
Derby, O. A., on the diamond district of Bahia, 220
Descubridora limestone, Chile, 14
Detail stratigraphy of the Biwabik iron-bearing formation, east Mesabi district, Minnesota (Broderick), 441
Determination of distances by time, 414
Deussen, Alexander, on age of oil in salt domes, 179
Diabase dikes, 390
Diabases, 290
Diagrams—analyses of sand chrome, 194, 195, 196; angle between direction of dip and direction of dip component, 177, 263; Constancia mine workings, Chile, 27; control of world's output of minerals, 158; determination of dip components, 347; formation of minerals of Cactus ore zone, 601; isochronous reaction, sulphur oxides, 595; quartz-magnetite mixtures, 357
Diallage, 517
Diamond region of Bahia, Brazil, Notes on the geology of the (Crandall), 220
Diamond washings, Morro do Chapeo, 228
Dietz, William, discovery of gold in Cariboo district, 335
Dikes, Chañarcillo district, Chile, 16, 26; Evergreen copper deposit, 467; of magnetite, 517
Dip of Florida beach, 313
Dip components, graphic determination, 176, 262, 346
Discussion—
American petroleum geologists in Europe (DeGolyer), 87
The Bendigo quartz veins (Stillwell), 430
Graphic determination of dip components where dips are measured in feet per mile (Lahee), 176, 262; (Palmer), 346
The Gulf coast salt domes (Hill), 643
The halogen salts of silver at Wonder, Nevada (Young), 427
Intrusive origin of the Gulf coast salt domes (Rogers), 178
The magmatic origin of barite deposits, 568
Magnetic and non-magnetic chrome (Lewis), 491
A publication for geological abstracts, 570
Rock classification for engineering (Smith), 180; (Pirsson), 264
Disseminated barite deposits, 54
Dolomite, 49; analysis of, 50
Donax variabilis, 308
Double Mountain formation, 103
Drake, N. F., on the Canyon series of Texas, 320
Duke oil field, Texas, 99
Duluth gabbro, basal phases, 367; granite dikes, 383
Dumble, E. T., on age of oil in salt domes, 179
Dunn, E. J., on Bendigo quartz veins, 431
Dyscrasite, 37

Economic factors in causing war, 153
Economic geology as a profession (Lindgren), 79
Editorials—
Economic geology as a profession, 79
Why ore is where it is, 640
Elevations, in reconnaissance mapping, 417
Ellenberger limestone formation, 108, 125

Ellenberger Ridge, central Texas oil field, 122
Elvins formation, 49
Emanations, volcanic, 590
Emerson, E. H., on the occurrence of anhydrite, 584
Emmons, W. H., on enrichment of ore deposits, 75; on the occurrence of barite, 583
Enrichment, Chañarcillo district, Chile, 33, 35, 43; La Fleur Mountain ore deposits, 408; Mesabi iron deposits, 461
Enrichment of tungsten ores, Experiments relating to (Gannett), 68
Entada scandens, 321
Erosion, Chañarcillo district, Chile, 32
Eskola, Pentti, on structure of granite, 386
Estancia series, 231, 243
Etching of iron ores, 360
Evergreen mine, Gilpin County, Colorado, Ore deposition and enrichment at the (McLaughlin), 465
Evergreenite, 469
Experiments relating to the enrichment of tungsten ores (Gannett), 68
Experiments to precipitate metallic copper and carbonaceous matter, 329

Factors influencing gold deposition in the Bendigo gold field (review of), 435
Farmington meteorite, 621
Farrington, O. C., on veins in meteorites, 621
Faulting, Chañarcillo district, Chile, 31; in Chile, 9; in Wasatch Range, 172
Fayalite, 454
Ferberite, 69; solubility, 77
Ferguson, H. G., reviews by, 495, 573
Ferric minerals, occurrence, 599
Ferritungstite, 76
Fincher oil well, Texas, 98
Fincher sand, central Texas oil field, 129
Fish in channel, Florida coast, 318
Fissures, Chañarcilla district, Chile, 20
Fixed carbon ratio, relation to oil accumulations, 488
Florida sea-beach, Observations on, with reference to oil geology (Kemp), 302
Foerste, A. F., on intraformational pebbles, 459
Folding, Adirondack region, 535; Chañarcillo district, Chile, 28
Folding and warping of strata, 484
Ford, W. E., review by, 89
Foreign markets, conquest by Germany, 152
Formation of primary sulphate minerals, 596
Fractures, origin, 21
Franklin Furnace ore deposits, 603
Fuller, M. L., *Quick method of reconnaissance mapping*, 411–423; *Relation of oil to carbon ratios of Pennsylvanian coals in North Texas*, 536–542
Fulton, C. H., on metallurgical smoke, 598

Gabamichigami Lake, 368
Gabbro, Duluth, basal phases, 367; granulitic, 380
Gabbro rocks, Clinton County, age, 510
Galloway, J. J., identifications by, 315
Gannett, R. W., *Experiments relating to the enrichment of tungsten ores*, 68–78; cited, 625, 637, 638
Gasconade formation, 50
Gases from Halemaumau, 592
Geijer, Per, on the occurrence of anhydrite, 594
General features of the New Jersey glauconite beds (Mansfield), 555
Genesis, gold deposits of Matachewan district, 281; magnetic iron ores of Lyon Mountain, 528; native copper, silver, and carbonaceous matter in Nonesuch formation, 329 (*see also* Origin)
Geography, of Missouri barite areas, 47
Geologic column, northern Chile, 6
Geologic factors in oil prospecting (Lahee), 480
Geologic history, north central Texas, 118
Geologic map—Lyon Mountain area, 515
Geologic symbols for use on field maps, 425
Geological abstracts, publication for, 570
Geology, central barite district, Missouri, 51; diamond region of Bahia, 220; Evergreen copper deposit, 467; La Fleur Mountain ore deposits, 404; Matachewan district,

Ontario, 285; Powell township, Ontario, 286; Washington County barite district, 48
Geology of the East Pool Mine (abstract), 270
Germany's method of commercial expansion, 148
Gilbert, G. K., on ridges in Medina sandstone, 315
Glaciation, British Columbia, 342
Glauconite beds, New Jersey, 555
Glauconite grains, character, 560
Gold, accumulation in British Columbia, 341
Gold deposits of Matachewan district, northern Ontario, The origin of (Cooke), 281
Gordon sand, central Texas oil field, 129
Goshen pyrite district, 215
Gourvitch, Paul, on German business methods, 153
Granite dikes, 383
Granitic rocks, Clinton County, 511
Grant, U. S., on contact metamorphism of a basic igneous rock, 391; on granite dikes in Duluth gabbro, 383
Granulitic gabbros, 380
Graphic determination of dip components, 176, 262, 346
Graphic logs of wells in central Texas oil fields, 128
Graphite, Adirondack deposits, 573
Graton, L. C., on the formation of anhydrite, 584
Graton, L. C., and McLaughlin, D. H., on pneumotectic sulphides, 403
Greenalite, 453
Greensand marl beds, New Jersey, 555
Greenstones, Minnesota, 392
Greisen, 627
Grenville series, 510
Griffiths, H. D., on wolframite deposits of Burma, 627
Grout, F. F., *The nature and origin of the Biwabik iron-bearing formation of the Mesabi range, Minnesota*, 452–464
Grout, F. F., and Broderick, T. M., on the magnetite of Mesabi Range, 365
Gulf coast salt domes, 643
Gunflint iron-bearing formation, metamorphism of, 395
Guthrie well, Texas, 123
Gypsum, 585
Hager, Dorsey, on oil fields of central Texas, 118
Halemaumau, gases from, 592
Halides of silver, chemical analyses, 40
Halogen salts of silver, Wonder, Nevada, 427
Harder, E. C., and Johnston, A. W., on origin of Cuyuna iron ores, 457
Harker, A., on different types of solfataric action, 591
Hatschek, E., and Simon, A. L., on the association of gold and carbon, 329
Hauser, Henri, on Germany's business methods, 148
Hauynite, 582
Hawkeye granite, 512
Hematite, relations to magnetite, 361
Hematite crystal showing residual magnetite, 358
Herzog, S., on the future of German industrial exports, 154
Hess, F. L., on solubility of tungsten minerals, 78; on tungsten minerals, 76
Hewett, D. F., on the occurrence of anhydrite, 584
Hicks, W. B., review by, 645
Hill, R. T., discussion by, 643
Hinsdalite, 589, 605
Hobbs, W. H., on tungsten minerals, 76
Holmquist, P. J., on margination structure of granite, 385
Home Creek horizon, Texas, 320
Hoover, H. C., on valuation of mines, 552
Horizons producing oil, Texas, 126
Hornerstown marl, 559
Horses' walk, speed under varying conditions, 415
Huantajaya silver district, Chile, 4
Hyperite, 377
Hypersthene, 378
Hypogene intergrowth of iron oxides, 362

Igneous geology, Chañarcillo district, Chile, 16
Igneous origin of barite deposits, 65
Impermeability of dolomites, 60
Indian River, Florida, 303, 322
Industrial control of raw materials, 157
Inking-in notes, 418
Intergrowth of minerals in Duluth gabbro, 374

International readjustment of mineral supplies, 147
Intrusive origin of Gulf coast salt domes, 178
Iodobromite, 37
Iron, Mesabi range, conditions of deposition, 457; precipitation by organisms, 456
Iron ores of Daiquiri, origin, 364; Gabimichigami Lake, 398; magnetic, 509; photomicrographs, 527
Iron oxide series, solid solution in, 353
Iron pyrite, 198
Iron situation in Europe, 162
Iron stock-taking, 548
Irving, J. D., on replacement deposits, 63
Irving, J. D., and Bancroft, H., on hinsdalite, 589
Irving, R. D., on native copper in Nonesuch sandstone, 325; on rocks of the Duluth laccolith, 384
Isochronous reaction, sulphur oxides, 595
Isovolves, north Texas, 539; relation of oil to, 541

J. H. McClesky oil well, 95
Jacobina series, 241
Jocuipe flints, 225, 242
Joe Duke oil well, Texas, 100
Jones, W. R., on tungsten in manganese ore, 77; on wolfram deposits, 629
Jones oil well, Texas, 97
Jones sand, central Texas oil field, 129
Juan Godoy, 2
Jupiter Inlet, Florida, 303
Juragua iron ores, 356

Kalisyndikat, 152
Kemp, J. F., *Observations on a Florida sea-beach with reference to oil geology*, 302–323; on Daiquiri iron ores, 364
Kennedy, William, on stratigraphy of Texas oil fields, 125
Keweenaw district, 324
Keweenawan series, 324
Knapp, G. N., on marl beds of New Jersey, 556
Knopf, Adolph, *Present tendencies in geology: metalliferous deposits*, 543–554; review by, 435; on association of cinnabar with alunite, 597; on copper-bearing amygdaloids, 328; on the occurrence of gypsum at the Utica mine, Calif., 585
Knowles oil well, Texas, 100

Labradorite, 377
Laccolith, 369
La Fleur Mountain ore deposits, 403
Lahee, F. H., *Geologic factors in oil prospecting*, 480–490; discussion by, 176, 262
Larsen, E. S., on the genesis of alunite, 588
Larsen, E. S., and Schaller, W. T., on hinsdalite, 589
Lauderdale oil well, Texas, 98
Lavras series, 225, 232, 243
Lawrencite, 621
Lazarevic, M., on occurrence of anhydrites, 585
Leaching, of copper ores, 594; of tungsten minerals, 68; table of, 71–72
Leg reefs, 431
Leith, C. K., on Mesabi iron ores, 452
Lençoes district, Brazil, 232
Le Roy, O. E., on geology of Boundary district, 404
Lewis, J. V., discussions by, 491, 568
Li, Chinese measure of distance, 416
Lightning Creek, British Columbia, 340
Lincoln, F. C., on volcanic emanations, 591
Lindgren, J. M., chemical analysis by, 385
Lindgren, Waldemar, *Economic geology as a profession* (editorial), 79; on change in character of ore solutions, 605; on characteristics of shallow deposits, 65; on relations of ore deposition to physical conditions, 545; on temperature of formation of mineral deposits, 583; on the occurrence of anhydrite, 583
Lindgren, W., and Ross, C. P., on Daiquiri iron ores, 364
Literature on the tungsten deposits of Burma, 625
Lithopone, 46
Little Cottonwood district, Utah, ore deposits, 172
Logs of wells in central Texas oil fields, 128, 135–145
Lohm oil field, Texas, 127
Lone Star mine, 404
Lopolith, 369

Loreto formation, Chile, 7
Loughlin, G. F., on faulting in the Wasatch Range, 172
Lower Bend shale, Texas, 108
Lower Huronian sediments, metamorphism of, 393
Lunge, G., on formation of sulphur trioxide, 593
Lyon Mountain area, geologic map, 515
Lyon Mountain granite, 512
Lyon Mountain quadrangle, 509

MacFarlane, C. W., on the economic basis of an enduring peace, 165
Maclaren, Malcolm, abstract of paper by, 270
McLaughlin, D. H., *Copper sulphides in syenite and pegmatite dikes*, 403–410; *Ore deposition and enrichment at the Evergreen mine, Gilpin County, Colorado*, 465–479
Magmatic origin of barite deposits, 568
Magmatic sulphides, 403
Magmatic waters, relation to ore deposition, 546
Magnetic and non-magnetic chrome, 491
Magnetic iron ores of Clinton County, New York (Miller), 509
Magnetic separation, of iron ores, 355; of sand chrome concentrates, 196
Magnetite, relations to hematite, 361
Magnetite and hematite, Some of the relations of (Broderick), 353
Magnetite beds, of Biwabik formation, 445; origin, 461
Manganese, bibliography, 245
Manganite, 629
Mansfield, G. R., *General features of the New Jersey glauconite beds*, 555–567
Manto de Ossa mine, Chile, 3
Maps—Bend Arch, central Texas, 119; barite areas of Missouri, 47; carbon ratios in north Texas, 540; Cariboo district, 338; central Texas, tectonics of oil pools, 121; Colorado-Ontario Development Co. property, 288; contact of Proctor and Potosi dolomites, 53; diamond district of Bahia, Brazil, 221; glauconite (greensand) belt of New Jersey, 557; Maryland, northeastern, 190; northern Ontario, 282; Ohio coal regions, 212, 214, 216; Powell township, Ontario, 283 (*see also* Geologic maps)
Mapping, reconnaissance, Quick method of (Fuller), 411
Marble Falls limestone, 107, 124
Marcasite, 198
Marl beds, New Jersey, 556
Maryland sand chrome ore (Singewald), 189
Matachewan district, gold deposits, 281
Matteson, W. G., *A review of the development in the new central Texas oil fields during 1918*, 95–146
Maury, C. J., identifications by, 315
Maxwell-Lefroy, E., on the occurrence of tungsten ores, 631
Means, J. H., on wolfram-tin deposits in Southern Shan States, 632
Medina sandstone cusps, 315
Melbourne Beach, Florida, 302
Melcher, A. C., on solubility of anhydrite, 583
Merrill. G. P., on veins in meteorites, 620
Metallic copper in a meteorite vein (Quirke), 619
Metamorphism, of Biwabik iron-bearing beds, 463; of Lower Huronian sediments, 393
Meteorite, Richardton, N. D., 619
Method for projecting structure through an angular unconformity (Corbett), 610
Method of reconnaissance mapping, outline of, 412
Mickle, G. R., estimates of Cobalt silver production, 550
Microphotographs (*see* Photomicrographs)
Microscope in study of ore deposits, 544
Miller, B. L., and Singewald, J. T., on Corocoro copper deposits, 602; on the occurrence of anhydrite, 584; review of book by, 495
Miller, W. J., *Magnetic iron ores of Clinton County, New York*, 509–535
Mineral commodities, 157
Mineral deposits, of South America (review), 495 (*see also* Ore deposits)
Mineral sequence, Evergreen ores, 474
Mineral supplies, readjustment, 147

Mineralization, in Chile, 10, 18, 23; in Missouri barite deposits, time of, 64; in Richardton meteorite, 620; of Braden copper deposits, Chile, 585; of La Fleur Mountain ore deposits, 405
Mineralogy, blowpipe analysis, and crystallography (review of), 89; Chañarcillo ores, Chile, 34. 37
Minerals of Duluth gabbro, 377; of Evergreen copper ores, 471; of unweathered taconite, 453
Mingling of marine and terrestrial organisms, 320
Mining in Chile, 2
Molybdenite, 636
Molydenum, control of, 167
Monongahela formation coals and pyrite, 218
Moore, E. S., on the iron formation on Belcher Islands, 446, 456
Moore, H. L., on economic cycles, 551
Moory, 55
Morro do Chapeo district, Brazil, 222
Mound, shell, Florida, 311
Mount Agnes, 339
Mucuna altissima, 321
Muscovite, 405
Myrmekite, 387

Native copper and silver in the Nonesuch formation, Michigan (Nishio), 324
Nature and origin of the Biwabik iron-bearing formation of the Mesabi range, Minnesota (Grout), 452
Navesink marl, 559, 564
Nebel, M. L., *The basal phases of the Duluth gabbro near Gabamichigami Lake, Minnesota, and its contact effects*, 367–402
Negro limestone, Chile, 15
New Jersey glauconite beds, General features of (Mansfield), 555
Newland, D. H., on Adirondack iron ores, 510
Nickel, in Duluth gabbro, 398
Nipissing diabase, 286
Nishio, Keijiro, *Native copper and silver in the Nonesuch formation, Michigan*, 324–334
Noera, Hazel, chemical analyses by, 533
Nonesuch formation, 324
Norite, 377
Noselite, 582
Note book form and symbols for petroleum geologists (Woodruff), 424
Notes on the geology of the diamond region of Bahia, Brazil (Crandall), 220
Notes on the placer mines of Cariboo, British Columbia (Tyrrell), 335

Observations on a Florida sea-beach with reference to oil geology (Kemp), 302
Ocean beach, materials of, 305
Off-shore bar, Florida coast, 319
Oil, central Texas, character, 131; relation of carbon ratios of coal to, 536; relation to isovolves, 541 (*see also* Petroleum)
Oil accumulation, structural conditions for, 484
Oil producing horizons, Texas, 126
Oil production, central Texas, 95
Oil prospecting, Geologic factors in (Lahee), 480
Oil sands, central Texas, 130
Oil wells, central Texas, logs of, 128, 135–145
Ore, persistence in depth, 551
Ore deposition and enrichment at the Evergreen mine, Gilpin County, Colorado (McLaughlin), 465
Ore deposits, tendencies in the study of, 543; Wasatch Range, Utah, 173
Ore shoots, Chañarcillo district, Chile, 26, 36
Origin, barite deposits, 58, 63, 568; chalcocite in Evergreen ores, 478; Evergreen copper ores, 465; fractures, 21; Gulf coast salt domes, 178; hematite in Daiquiri iron ores, 364; iron of Mesabi ores, 456; magnetic iron ores of Lyon Mountain, 528; petroleum in Texas salt domes, 644; pyrite deposits, 199; taconite, 455; tungsten deposits, 626, 630, 633 (*see also* Genesis)
Origin of the gold deposits of Metachewan district, northern Ontario (Cooke), 281
Orthoclase, 405
Orthotectic minerals, 475
Otisse type of gold deposits, 293
Outliers of Duluth gabbro, 381
Oxidation, Chañarcillo ore deposits, Chile, 36; La Fleur Mountain ore deposits, 408
Ozark plateau, topography, 48

Pace-making, 413
Page, J. J. A., on minerals associated with wolframite, 632
Paige, Sidney, on the age of the Bend formation, 107
Palmer, H. S., discussion by, 346
Panizo, Ahuesdo, Chile, 15
Panizo Azul limestone, Chile, 16
Paragenesis of minerals in barite deposits, 62; of vein minerals in tungsten deposits of Burma, 635
Paraguassú series, 232, 243
Parks oil well, Texas, 96
Pegmatites, 290
Peneplain, relation to ore deposition, 547
Pennsylvanian series, central Texas, 104
Peñon formation, Chile, 6, 7
Pepper, H. R., chemical analysis by, 630
Permian formations, central Texas, 103
Persistence of ore in depth, 551
Petrography, Duluth gabbro, 370
Petroleum, conditions for accumulation, 484 (*see also* Oil)
Petroleum production in Ranger field, 98
Phosphate, commercial control of, 168
Photomicrographs—Chañarcillo ores, Chile, 37; conglomeratic rocks, 459; copper ore, 326; copper ores of Evergreen mine, 472; Duluth gabbro, 372, 375, 376; iron ores, 360; magnetic iron ores, 527; Richardton meteorite, 619; taconite rocks, 458
Physical chemistry, application to ore deposits, 545
Physical conditions affecting ore deposition, 545
Physiography, of northern Chile, 10; relation to ore deposits, 546; Serra do Tombador district, Brazil, 223
Pirsson, L. V., discussion by, 264
Placer mines of Cariboo, British Columbia, Notes on the (Tyrrell), 335
Plagioclase, 370
Plotting, of courses, 413; of distances, 416
Pneumotectic, 403
Pneumotectic minerals, 475
Porphyry, 289
Potash, 156; from greensand, 566
Potash deposits of Punjab, 645
Potash syndicate, 151
Potosi formation, 49
Pottsville formation coals and pyrite, Ohio, 211
Powell township, Ontario, gold deposits, 281
Precipitating tungsten from solution, 73
Precipitation, of iron by organisms, 456; of metallic copper and carbonaceous matter, 329
Present tendencies in geology: metalliferous deposits (Knopf), 543
Prices of pyrite, 210
Primary (hypogene) sulphate minerals in ore deposits (Butler), 581
Primary mineralization, Chañarcillo district, Chile, 23, 31
Primary sulphate minerals, formation of, 596
Proctor formation, 50
Production of pyrite, Ohio coal fields, 219
Production control of minerals, 157
Productive oil sands, central Texas, thickness, 130
Projecting structure through an angular unconformity, Method for (Corbett), 610
Pyrite, cleaning methods, 209; importation of, 200; occurrence, 198; origin, 199; uses, 200; production in Ohio, 219; prices, 210
Pyrite deposits in Ohio coal (Tucker), 198

Quartz-magnetite mixtures, 357
Quebradas, 11
Quick method of reconnaissance mapping (Fuller), 411
Quicksilver resources of California (review of), 349
Quirke, T. T., *Metallic copper in a meteorite vein*, 619–624

Ranger anticline, 113
Ranger oil field, Texas, 96; structural conditions, 111
Ransome, F. L., review by, 349; on occurrence of magnetite and garnet, 600; on ore deposition at Goldfield, Nev., 587; on the formation of sulphuric acid in nature, 594; on the occurrence of alunite, 586
Rassenfosse, A., on colloidal copper, 329
Rastall, R. H., on genesis of tungsten ores, 77

Readjustment of mineral supplies, 147
Reconnaissance mapping, Quick method of (Fuller), 411
Regional metamorphism, Duluth gabbro, 390
Relation of oil to carbon ratios of Pennsylvanian coals in North Texas (Fuller), 536
Relation of ore deposits to thrust faults in the central Wasatch region, Utah (Butler), 172
Relations of magnetite and hematite, Some of the (Broderick), 353
Replacement, in Duluth gabbro, 376; of magnetite by hematite, 362
Representation of culture in reconnaissance mapping, 418
Reserves of iron ores, 549
Reservoir or sand conditions for petroleum accumulation, 484
Residual barite deposits, 55
Review of the development in the new central Texas oil fields during 1918 (Matteson), 95
Review of the recent literature on the tungsten deposits of Burma (Turner), 625
Reviews—
The Adirondack graphite deposits, 573
The factors influencing gold deposition in the Bendigo gold field (Stillwell), Knopf, 435
Mineral deposits of South America (Miller and Singewald), Ferguson, 495
Mineralogy, blowpipe analysis, and crystallography (Butler), Ford, 89
The potash deposits of the Punjab salt range and Kohat and suggestions regarding the origin and history of the rock salt deposits of the Punjab and Kohat (Stuart), Hicks, 645
Quicksilver resources of California (Bradley), Ransome, 349
Richardton meteorite, 619
Ritter, E. A., on the Evergreen copper deposit, 466
Rock classification for engineering, 180, 264
Rock types, relation to original shore lines, 482; relation to petroleum deposits, 481
Roesler, M., on Daiquiri iron ores, 364
Rogers, A. F., on enrichment of copper ores, 478
Rogers, A. W., on use of microscope in studying ore deposits, 544
Rogers, G. S., discussion by, 178
Roper oil well, Texas, 97, 112
Roubidoux formation, 51

Saare district, 160
Saito, D., analysis by, 327
Salitre series, 244
Salt deposits of Punjab, 645
Salt domes, intrusive origin, 178; of Gulf coast, 643
Salt water, Ranger oil field, Texas, 114
Sand chrome ore, Maryland (Singewald), 189
Sandidge oil well, Texas, 98
Sands, central Texas oil fields, thickness, 130
Saranac valley ore belt, 509
Scapolite, 590
Scheelite, 69, 635
Scientific notes and news, 90, 184, 272, 350, 437, 503, 576, 649
Sclaenops ocellatus, 318
Screen analysis of sand chrome, 194
Sea-beaches, 302
Secrist, Horace, on statistical methods, 551
Sections—Biwabik iron-bearing formation, 444; coal measures of Ohio, 202; conditions for oil accumulation, 486; Copper Range near Calumet, 326; from Copiapó into the Cordillera, Chile, 8; Morro do Chapeo district, Brazil, 227; of successive marine deposits, 483; sediments at base of Serra do Tombador, Brazil, 223; Serra das Lavras anticline, Brazil, 234
Sederholm, J. J., on synantectic minerals, 373
Segundo tuff, Chile, 16
Septaria, Mesabi range, 449
Serra das Larvas district, Brazil, 236
Serra do Tombador district, Brazil, topography, 223
Shark River marl, 559
Sharks' teeth, occurrence at Melbourne, Florida, 305
Sharwood, W. J., on tungsten minerals, 76
Shell mound, Florida, 311
Shells on Florida beach, 315

Silexite, 513
Silver, halogen salts, Wonder, Nevada, 427
Silver, native, Michigan, 324
Silver halides, chemical analyses, 40
Silver mining in Chile, 3, 4
Silver production of Cobalt district, 550
Silver veins, Chañarcillo district, Chile, 28
Sincorá section, Brazil, 239
Singewald, J. T., Jr., *Maryland sand chrome ore*, 189–197
Singewald, J. T., and Miller, B. L., on Daiquiri iron ore, 364; review of book by, 495
Sink hole barite deposits, 54
Sjögren's method of estimating iron ore reserves, 549
Slaty beds of Biwabik formation, 446, 449
Slough Creek, British Columbia, 340
Smelter gases, behavior of, 598
Smith, P. S., on pyrite, 198
Smith, W. D., discussion by, 180
Smithwick shale, Texas, 106, 124
Solid solution in iron oxide series, 353
Solubility of barium salts, 59
Some of the relations of magnetite and hematite (Broderick), 353
Some problems of international readjustment of mineral supplies as indicated in recent foreign literature (Bliss), 147
Sosman, R. B., and Hostetter, J. C., on natural oxides of iron, 354
South America, mineral deposits of, 495
Spencer, A. C., on contact deposits of Santa Rita district, 600; on ore deposits of Franklin Furnace, N. J., 603
Spurr, J. E., on iron ores of Minnesota, 452; on mineralization at Tonopah, 605
Statistical data, application to mineral deposits, 551
Steinman, G., section in Chile by, 8
Stereogram, illustrating location of ore shoot at intersection of thrust fault and fissure, 174
Stillwell, F. L., discussion by, 430; review of book by, 435
Stokes, H. N., on deposition of copper salts, 326
Stone, G. W., review by, 267
Stratigraphic history, north central Texas, 118
Stratigraphy, central Texas oil field, 101; Chañarcillo district, Chile, 13; Wasatch Range, Utah, 172
Stratigraphy, Detail, of the Biwabik iron-bearing formation, east Mesabi district, Minnesota (Broderick), 441
Strawn formation, Texas, 106, 127
Strawn oil pool, Texas, 96
Stream piracy, British Columbia, 340
Structural conditions for oil accumulation, 484
Structural geology, central Texas oil fields, 109
Structure, eastern Mesabi range, 443; northern Chile, 7, 18; subsurface, determination of, 615; Wasatch Range, Utah, 173
Stuart, Murray, review of paper by, 645
Subsurface structure, determination of, 615
Sulphate minerals, in ore deposits, 581; primary, formation of, 596
Sulphides, magmatic, 402; magmatic origin, 373
Sulphur in volcanic emanations, 593
Sulphur trioxide, conditions of formation, 593
Sulphuric acid, production of, 594, 604
Sulphurous water, Florida, 305
Sundt, Lorenzo, on geology of Chile, 12
Svonbergite, 590
Sweden's iron ore reserves, 548
Sycotypus pyrum, 311
Syenite and pegmatite dikes, Copper sulphides in (McLaughlin), 403
Symbols for petroleum geologists, Note book form and (Woodruff), 424
Synantectic minerals, 373

Taber, S., on mechanics of vein formation, 432
Tables—Control of world's output of minerals, 158; Cretaceous and Tertiary formations of New Jersey and Maryland, 558; data concerning Ohio coal mines, 203–208; formations of central Texas, 102; gases from Halemaumau, 592, 593; geologic formation of Chile, 8; leaching of tungsten minerals, 71–72; oil wells of central Texas, 132; precipitation of tungsten, 74; relation of oil and gas to carbon in coal, 538

Taconite, 452, 455; minerals of, 453; origin, 455
Tarr, Mrs. W. A., analysis by, 49
Tarr, W. A., *The barite deposits of Missouri*, 46–67; review of book by, 267
Tavoy tungsten district, 626
Tectonic relations north central Texas oil pools, 120
Tendencies in study of ore deposits, 543; bibliography, 553
Terebratula harlani, 561
Texas and Pacific Coal Company, oil development by, 95
Thaumasite, 589
Thrust faulting, Wasatch Range, Utah, 173
Tierra Amarilla formation, Chile, 7, 12
Tilley, C. E., discussion by, 570
Tin, commercial control of, 168
Tin ore, Burma, 629
Tin-tungsten ores, Tavoy, 632
Tinton member, 561
Tobelman, H. A., and Porter, J. A., on leaching by the New Cornelia Copper Co., 594
Tolman, C. F., and Rogers, A. F., on magmatic sulfid ores, 400
Tombador series, 225, 242
Topography, Cariboo district, British Columbia, 337; northern Chile, 5; of the beach (Florida), 312
Trewartha-James, W. H., on deposition of cassiterite after wolframite, 632
Trickham oil field, Texas, 123
Troilite, 619
Tucker, W. M., *Pyrite deposits in Ohio coal*, 198–219
Tungsten, German control of, 166; precipitation from solutions, 73
Tungsten deposits of Burma, 625; literature on, 625
Tungsten minerals, solubility, 77
Tungsten ores, alteration in tropical climates, 629
Tungsten ores, Experiments relating to the enrichment of (Gannett), 68
Tungsten sulphide, 603
Tungstite, 629
Turner, H. W., *Review of the recent literature on the tungsten deposits of Burma*, 625–639
Tuscarawas County, Ohio, pyrite deposits, 215
Tyrrell, J. B., *Notes on the placer mines of Cariboo, British Columbia*, 335–345

Una fault, Brazil, 240
Unconformity, relation to oil accumulation, 486
Upper Huron sediments, metamorphism of, 395
Uranium, commercial control of, 167

Vanadium, American control of, 167
Van der Gracht, W., on oil in salt domes, 179
Van Hise, C. R., on conservation of mineral resources, 544; on native copper in Nonesuch sandstone, 325
Van Hise, C. R., and Leith, C. K., on Mesabi iron ores, 452
Veale oil pool, Texas, 98
Veale sand, central Texas oil field, 130
Veins, containing barite, Missouri, 52; Chañarcillo district, Chile, 19; in meteorites, 620; *of Chañarcillo, Chile* (Whitehead), 1
Venus cancellata, 311
Venus mercenaria, 311
Verbeek, R. D. M., estimation of tin reserves of Billiton, 549
Verde tuff, Chile, 14
Veta Candelaria, Chañarcillo district, Chile, 20
Veta Descubridora, Chañarcillo district, Chile, 2, 20
Vicksburg limestone, 304
Volcanic emanations, 590
Volcanic rocks, Matachewan district, 287

W. L. McCleskey oil well, Texas, 97
Walcott, C. D., on algal growth in the Belt formation, 446
Wasatch Range, Utah, thrust faults of, 172
Washing sand chrome, 191
Wells, oil, central Texas, logs of, 128, 135–145
Wells, R. C., and Butler, B. S., on tungsten sulphide, 603
Wheeler, H. L., *Bibliography of the occurrence, geology and mining of manganese, with some references on its metallurgy and uses*, 245–261
White, David, on relations in origin between coal and petroleum, 536
Whitehead, W. L., *The veins of Chañarcillo, Chile*, 1–45

Whitson oil well, Texas, 97
Why ore is where it is (editorial), 640
Wichita formation, Texas, 103
Width, of veins, Chañarcillo district, Chile, 24
Wilkeite, 590
Williams Creek, British Columbia, 339
Willis, Bailey, on fracturing, 21
Wilson, M. E., on barite deposits of Missouri, 47
Winchell, Alexander, on granulitic gabbro, 379
Winchell, N. H., and Winchell, H. V., on iron ores of Minnesota, 452
Winston well, Texas, 122
Wolff, J. F., on the formations of the Mesabi range, 443
Wolfram mines of Mount Carbine (abstract), 271
Wolframite, 69, 626, 629; decomposition, 636; solubility, 77
Wollastonite, 469, 477
Woodruff, E. G., *Note book form and symbols for petroleum geologists*, 424–426.

Young, J. W., discussion by, 427

Zapffe, Carl., on metamorphism of iron-bearing formation, 391
Zies, E. S., Allen, E. T., and Merwin, H. E., on reactions in copper-sulphide enrichment, 607
Zircon in beach sands, 306
Zoning, Chañarcillo district, Chile, 33; in iron ores, 360